

DETAILED ACTION

In an amendment dated March 8th, 2010, the Applicants amended claims 1, 6, 8-9, 12 and cancelled claims 5, 7 and 11. Currently claims 1, 3-4, 8-10, and 12-13 are pending.

Allowable Subject Matter

The following is an examiner's statement of reasons for allowance: the prior art either alone or in combination teaches with respect to claim 1:

an apparatus for driving a liquid crystal display, including a plurality of pixels arranged in a matrix, the apparatus comprising:

a signal controller supplying image data to a data driver and generating digital gray data based on a distribution of grays of the image data for one frame; and,

a digital/analog converter converting the digital gray data from the signal controller into analog voltages and supplying the analog voltages to the data driver as the gray voltages,

the data driver selecting data voltages corresponding to the image data representing at least one gray from the gray voltages and applying the data voltages to the pixels.

Additionally, the prior art, alone or in combination, also teaches with respect to claim 9:

a method for driving a liquid crystal display, the method comprising:

reading out image data representing at least a gray for one frame;

calculating gray distribution of the read image data;

modifying a standard gray voltage curve based on the calculated gray distribution to generate digital gray data;

converting the digital gray data into analog voltages; and

supplying the analog voltages to a data driver as gray voltages.

With respect to claim 1 and 9 the prior art does not teach either alone or in combination:

wherein the digital data voltage (VGX') is calculated based on relations given by:

$$AVX' = AVX \cdot (1 + KX \cdot \Delta PX) \text{ and,}$$

$VGX' = AVX' \cdot (\Sigma AV / \Sigma AV') + VGX - 1$, where ΔVX is a difference between a maximum gray voltage and a minimum gray voltage for the value section on the standard gray voltage curve, KX is a weight value assigned to the section, ΔPX is defined as $PX - (AP)X$, where PX is a distribution probability for the value section and $(AP)X$ is a distribution probability for maintaining the standard gray voltage curve, $\Sigma \Delta V$ is a sum of the differences (ΔVX) between maximum gray voltages and minimum gray voltages for the respective value sections on the standard gray voltage curve, $\Sigma AV'$ is a sum of $\Delta VX'$, and $VGX - 1$ is a maximum gray voltage of a previous value section in the standard gray voltage curve.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/W. L. B./
Examiner, Art Unit 2629
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